



Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة



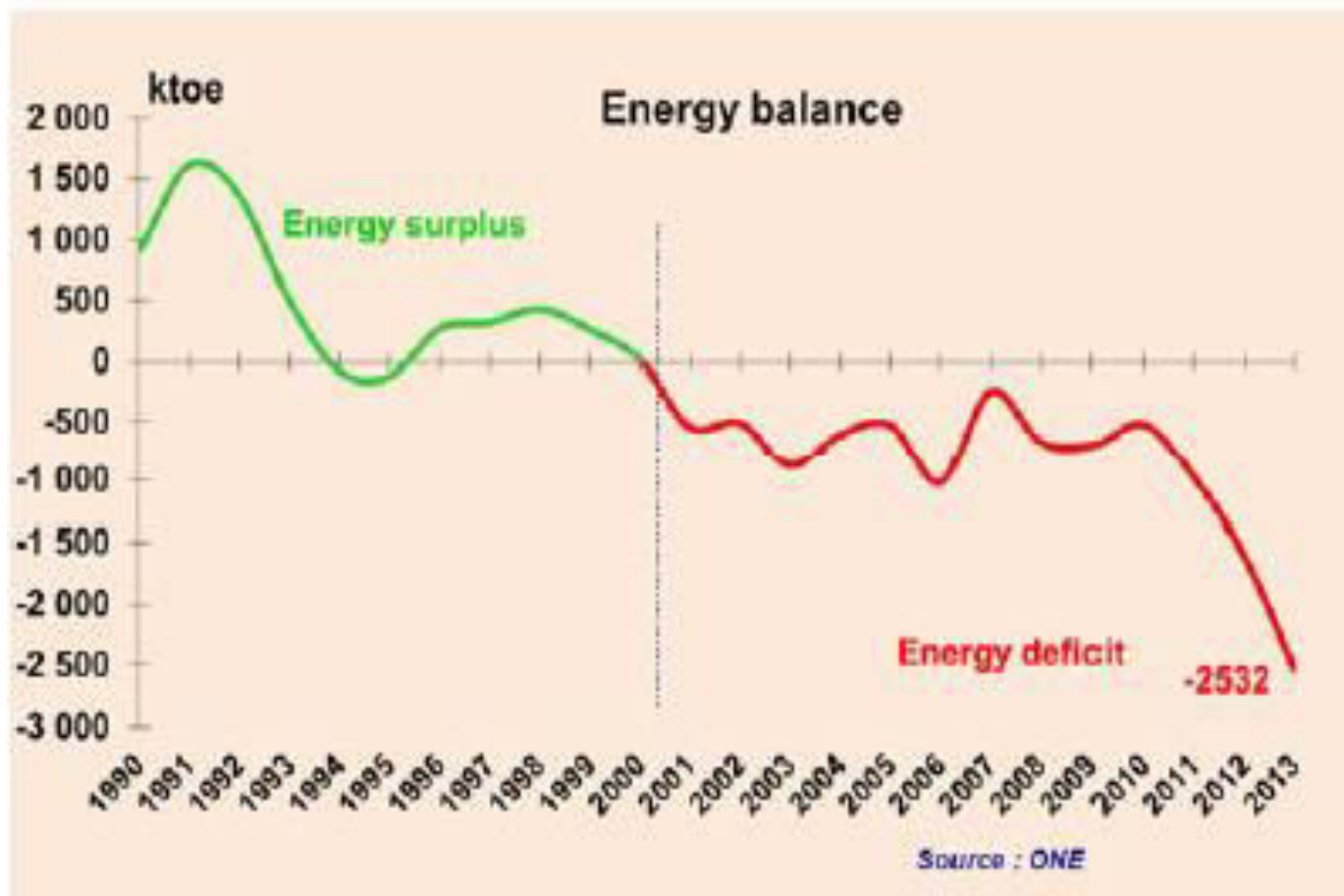
Value & employment effects of a bottom up approach: The example of Tunisia

**THE SOCIO-ECONOMIC BENEFITS OF SUSTAINABLE ENERGY:
OPPORTUNITIES, APPROACHES
AND INSTRUMENTS FOR LOCAL VALUE AND EMPLOYMENT
PROMOTION THROUGH RENEWABLE ENERGY AND ENERGY
EFFICIENCY IN THE MIDDLE EAST AND NORTH AFRICA**

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Energy situation

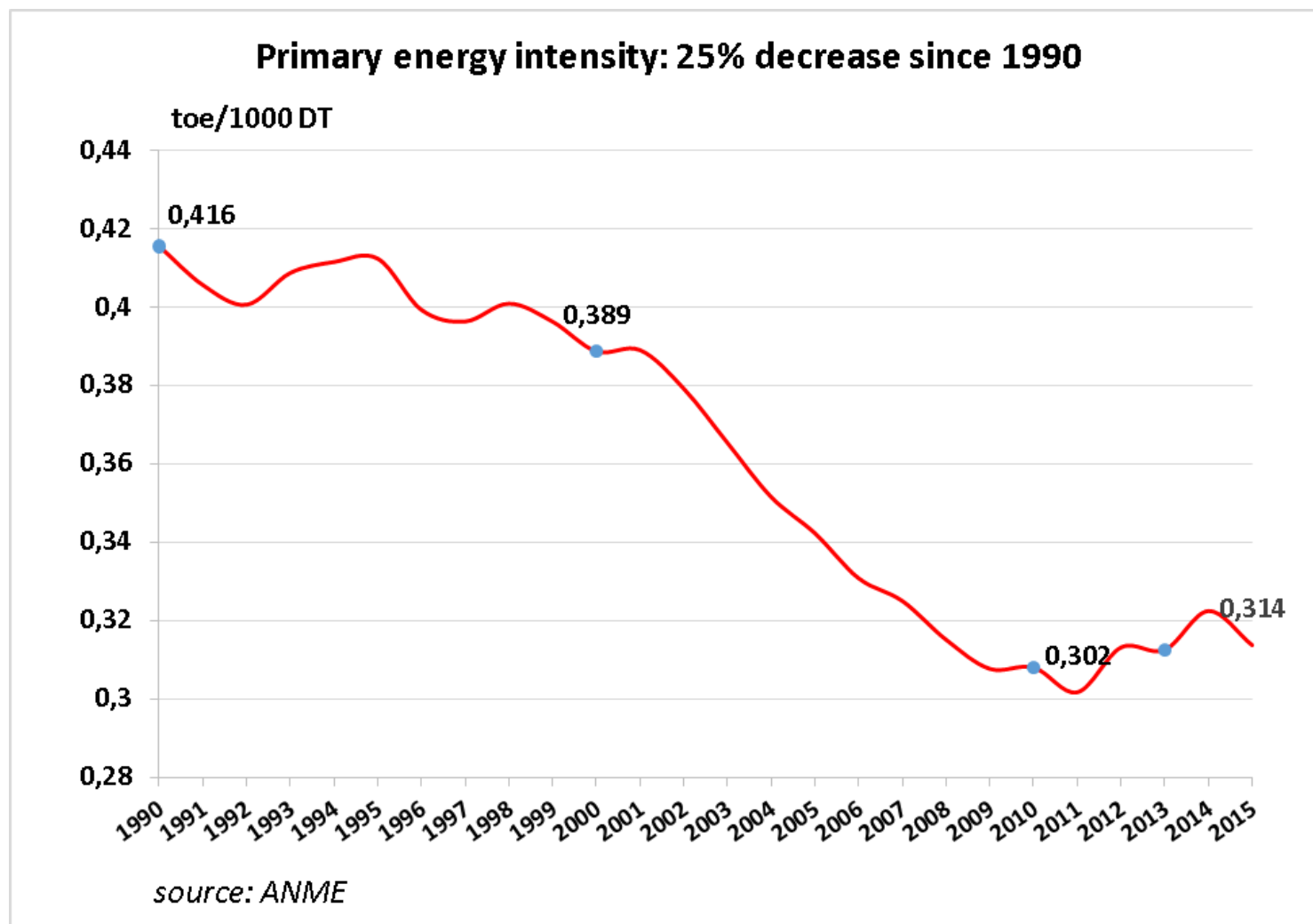
- Prices are heavily subsidized with a policy of non targeted compensation aimed to amount subsidies increasing;



Evolution of the energy balance in Tunisia (Source: ONE, 2014)

Energy situation

➤ EE policy;



Scope

Market of goods and services

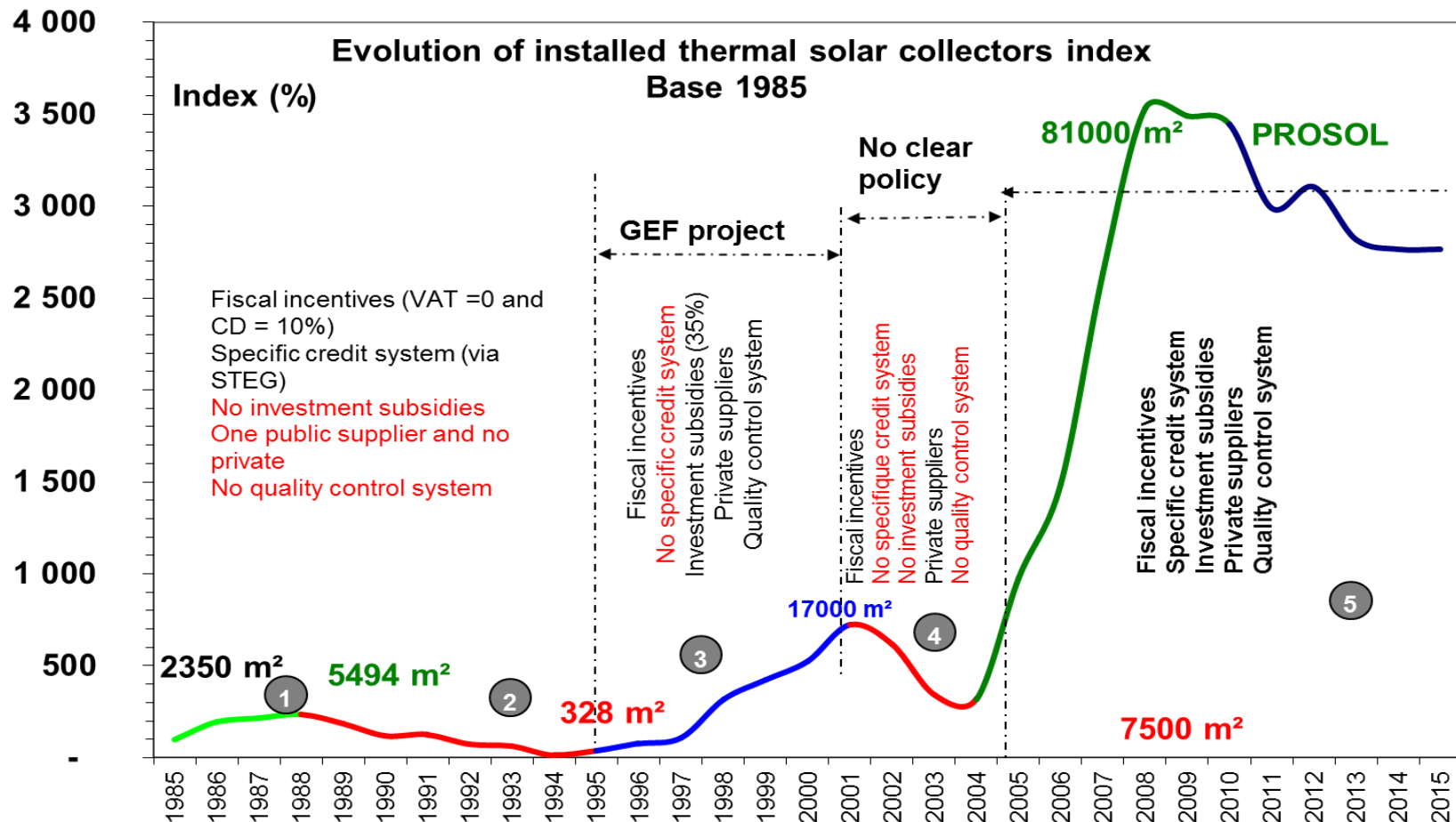
Renewable Energy

- **Solar Water Heaters (individual and collective)**
- **Photovoltaic for electricity generation**
- **Wind**

Energy Efficiency

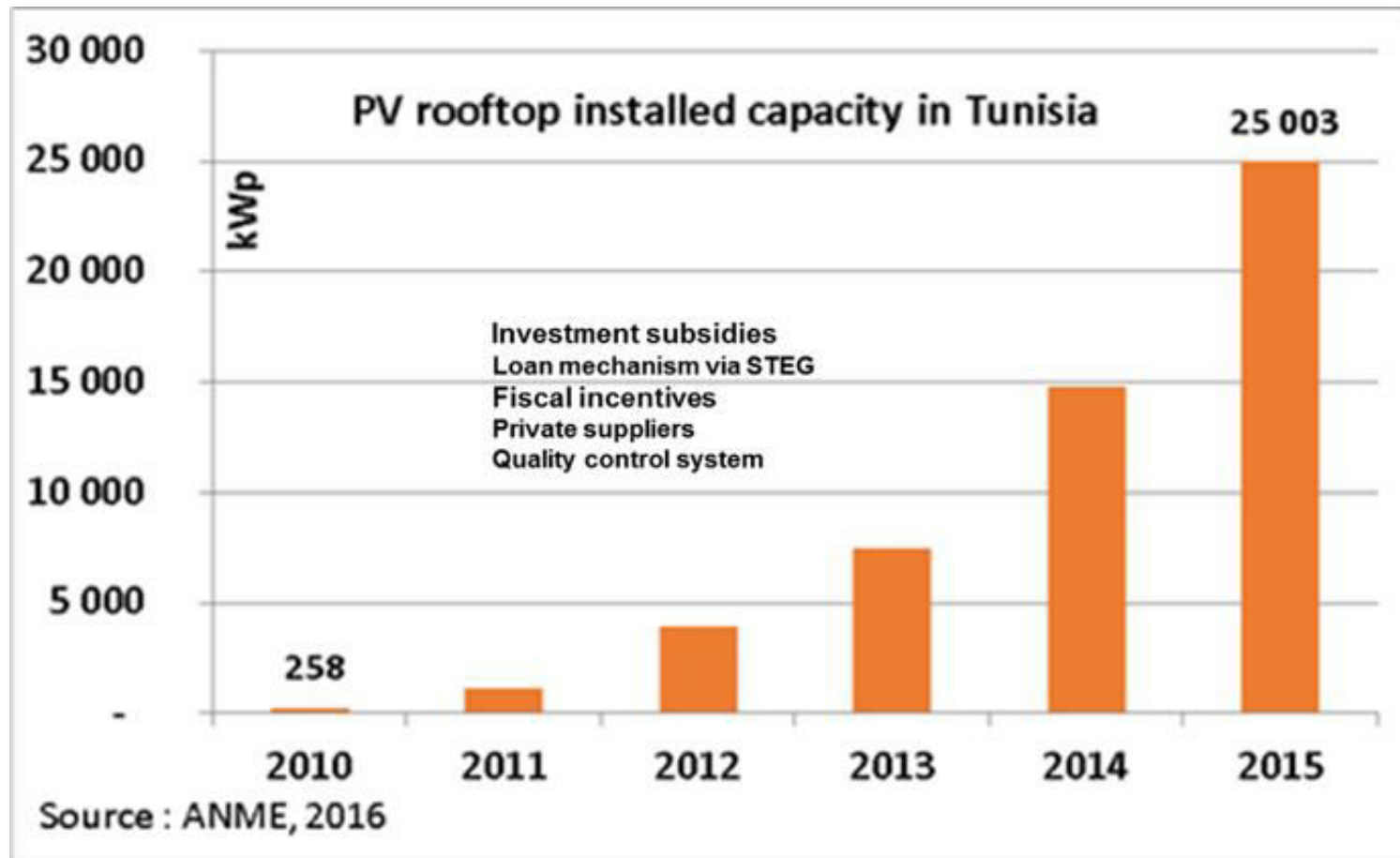
- **Energy audits (all sectors)**
- **Cogeneration for heat and electricity generation**
- **EE appliances and equipments**

SWH market



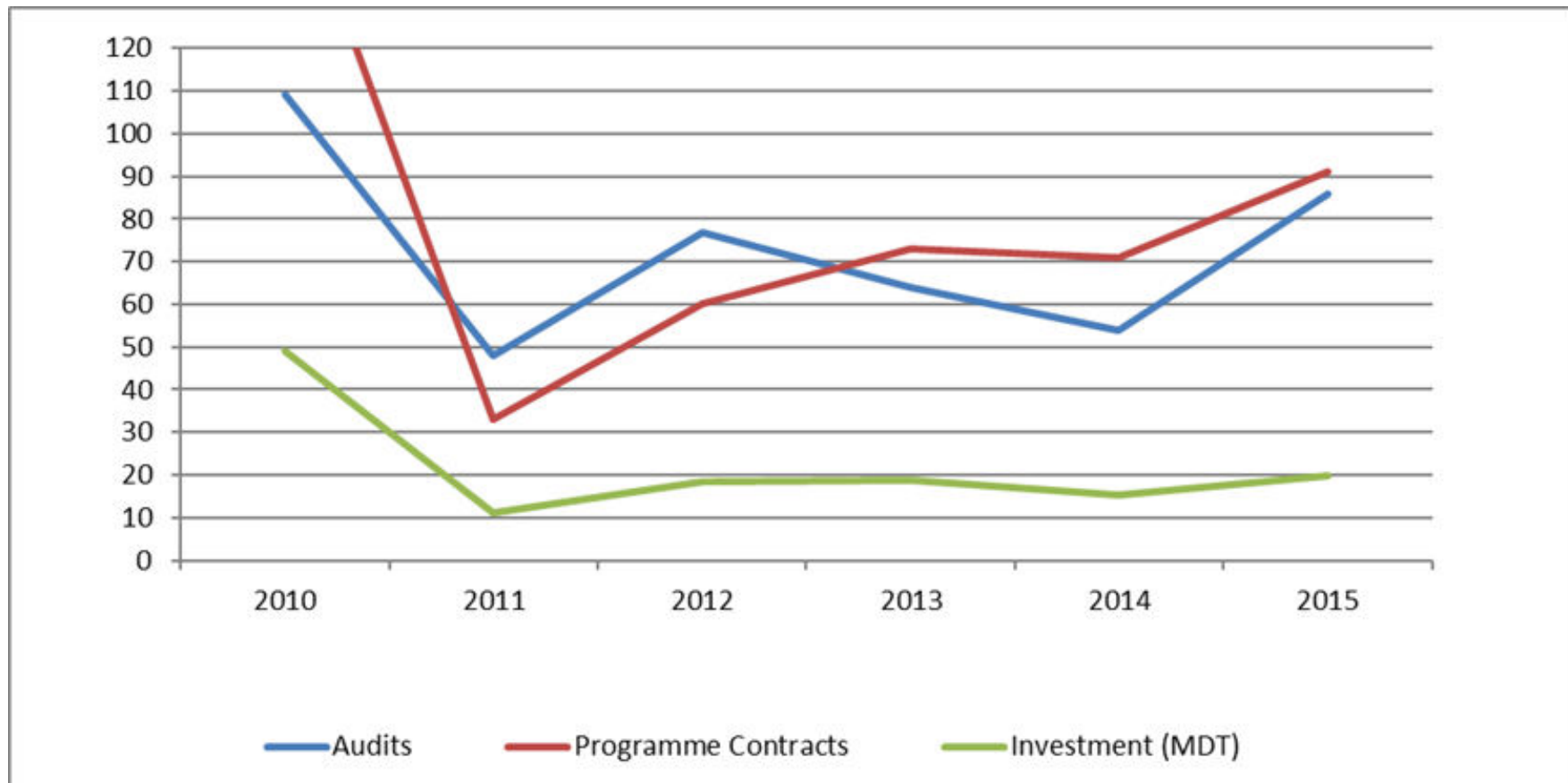
- 50 suppliers, 7 local manufacturers
- More than 1200 installers

PV market

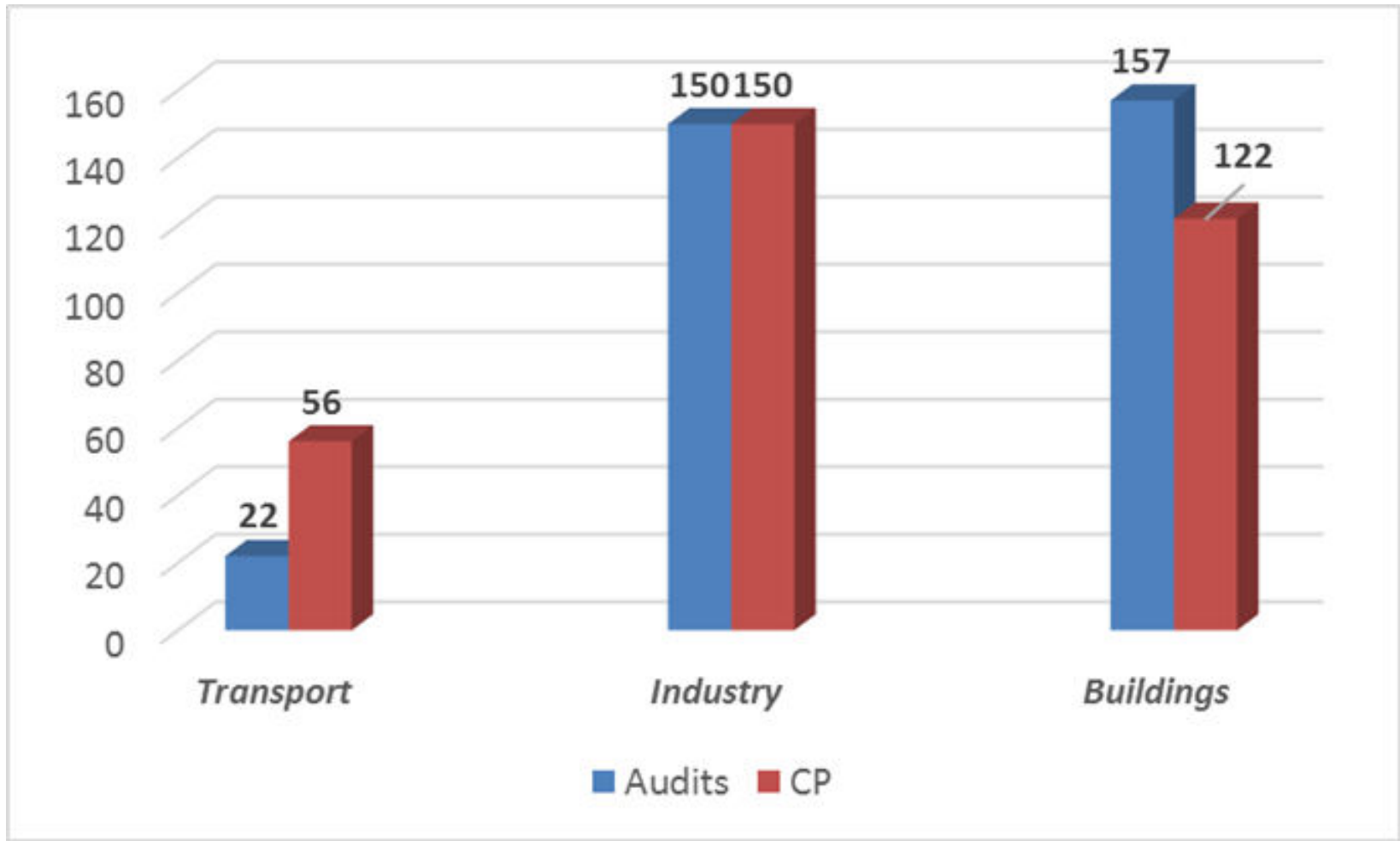


- 4 local assembling factories
- More than 170 suppliers/ Installers

Energy auditing market and PC

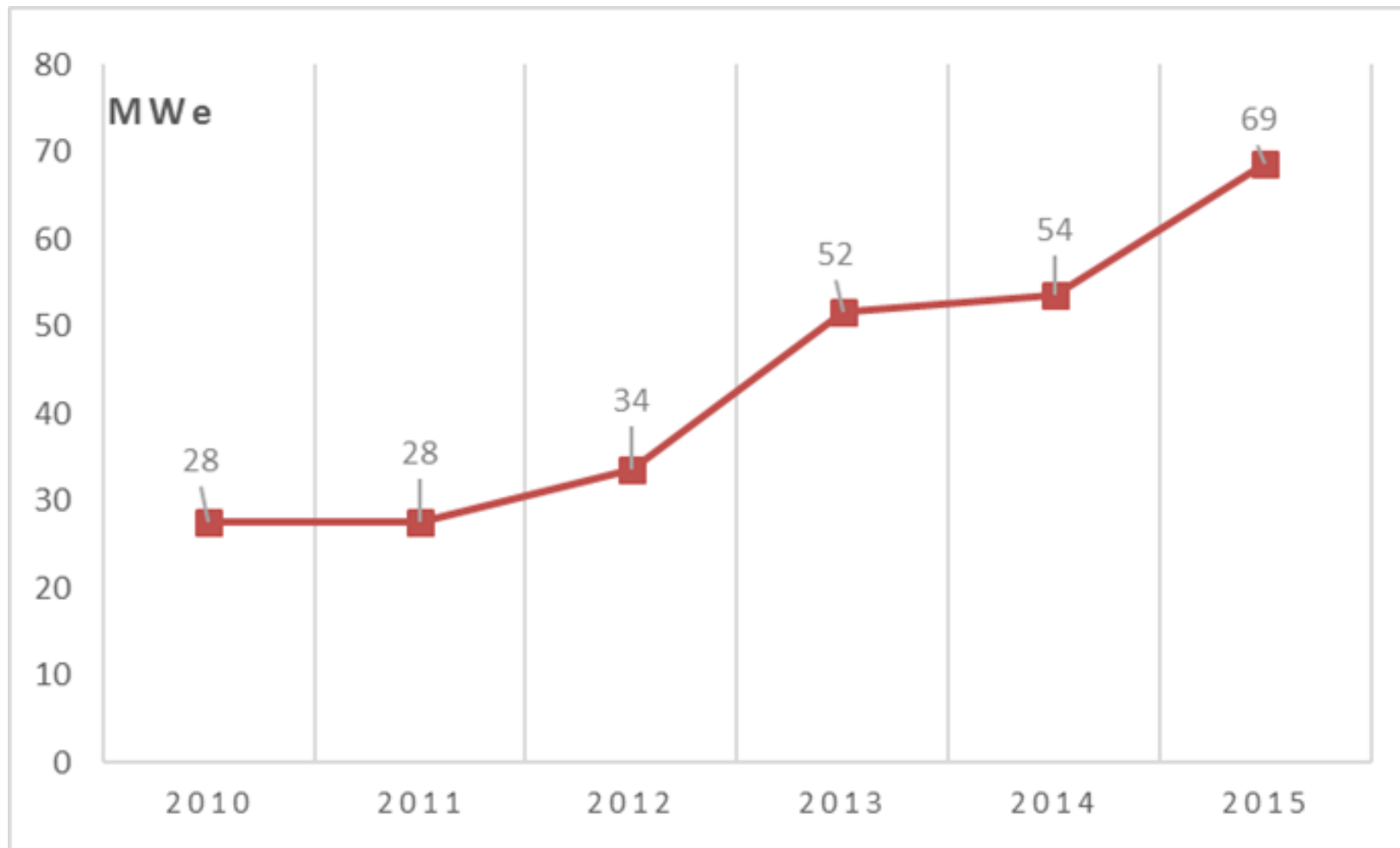


Energy auditing market and CP



- More than 150 certified energy auditors

Cogeneration installed capacity

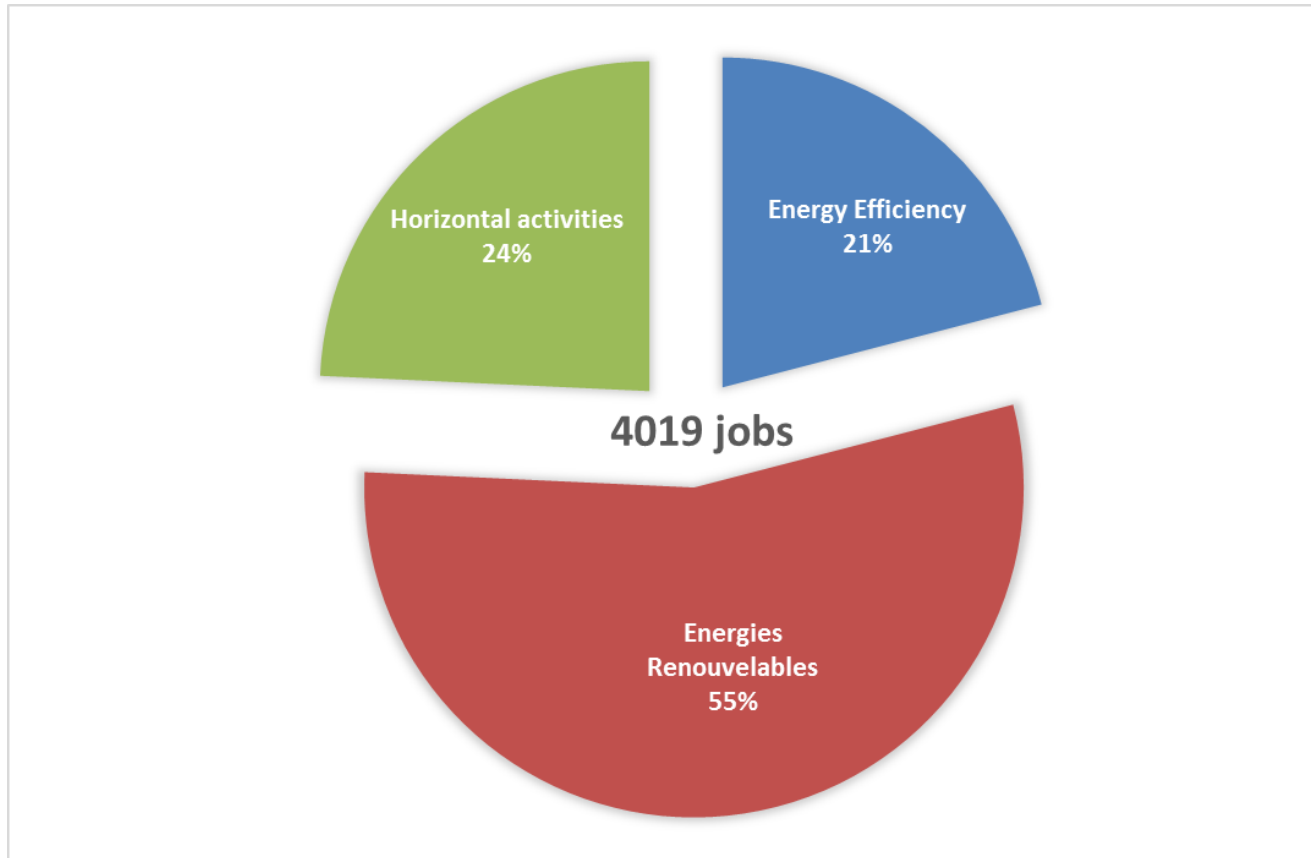


Jobs created

Métier	Testing	Development & Study	Manufacturing	Supply & Installation	Operating & Maintenance	Support	Total emplois 2010-2015
Programme							
Energy Efficiency	30	139	-	604	69		842
Audits & CP	-	139	-	-	-		139
Energy Efficiency in buildings	25	-	-	36	-		61
Cogeneration	-	-	-	8	48		56
Motor diagnostics	-	-	-		21		21
EE equipments	5		-	560			565
Energies Renouvelables	15	12	311	1 550	314	-	2 202
PROSOL Residential	15	-	282	1 011	192		1 500
PROSOL Tertiary		4		16	6		26
PROSOL Elec	-	-	29	501	18		548
Wind	-	8		22	98		128
TOTAL EE & ER	45	151	311	2 155	383	-	3 044
Horizontal activities						975	975
Promotion						200	200
Training & Education						200	200
R&D						25	25
Energy Manager						500	500
Consulting						50	50
Total	45	151	311	2 155	383	975	4 019

- REs represents more than 50% of total direct employments
- Distributed programs are more intensive in terms of employment

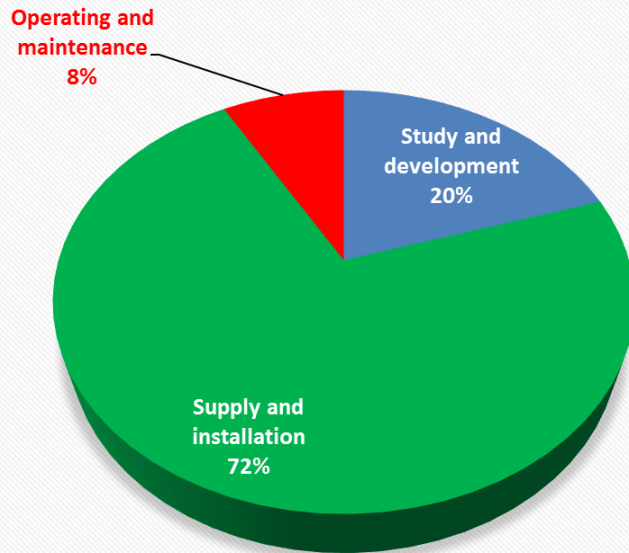
Jobs created



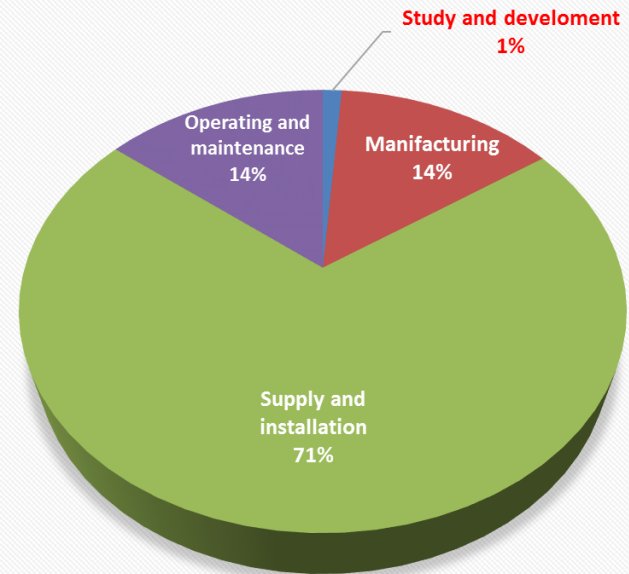
- REs is more intensive than EE (55% of total employment)
- EE is, always, more profitable for the end user
- Support activities can also create jobs

Jobs created Vs value chain

Energy Efficiency

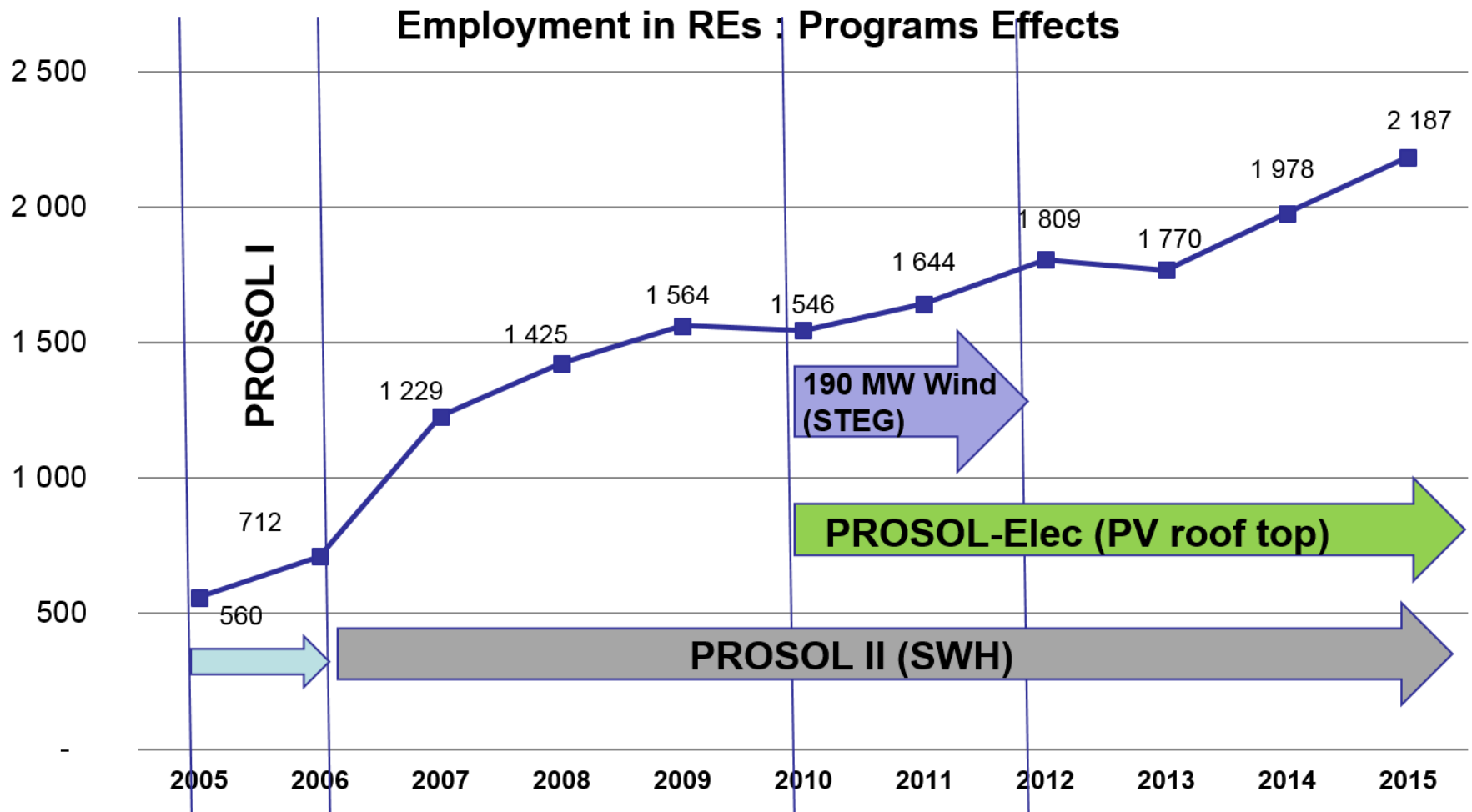


Renewable Energy



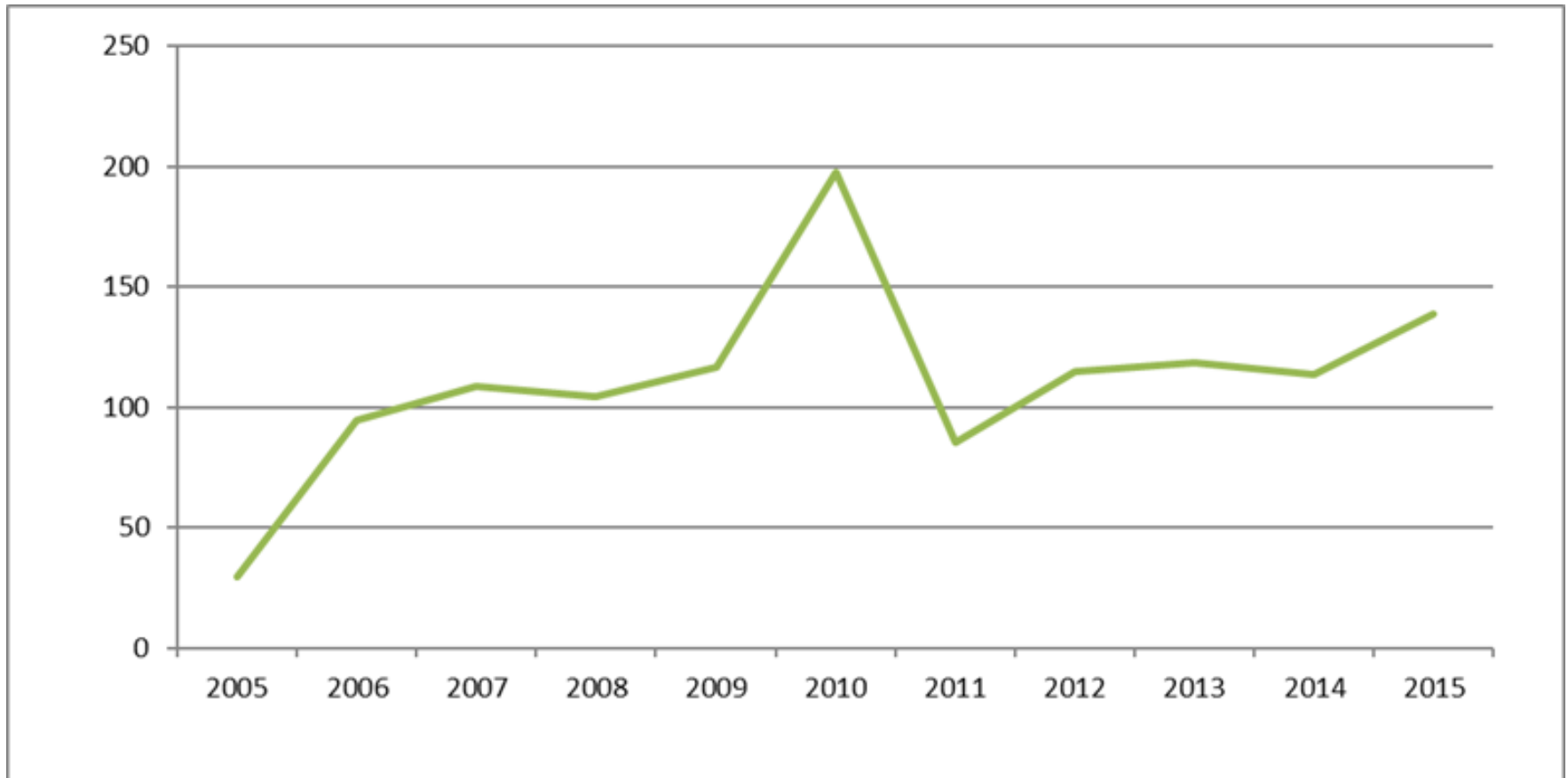
- RETs and EETs supply is more intensive for employment)
- Manufacturing needs visibility and market scale
- O & M are also interesting

REs programs effects on jobs created



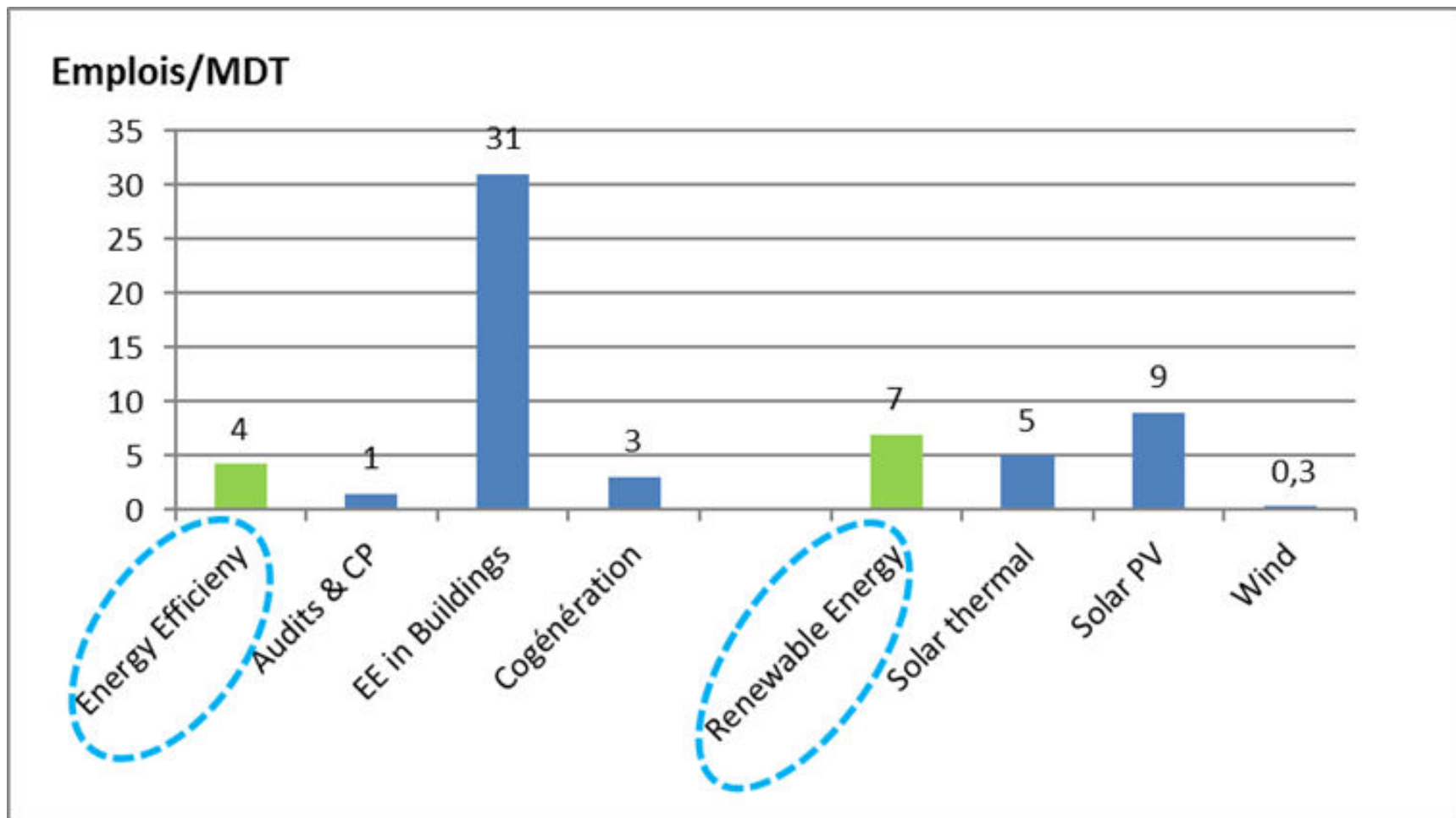
EE programs effects on jobs created

Evolution of jobs in Audits and CP activities



Jobs created: Main indicators

Economic intensity of Employment



Jobs creation: Main finding

What are the lessons

- ❑ EC may have positive effects on employment and economic development in general.
- ❑ For short and medium term, employment has to be considered as a co-benefit and not as main criteria for EC activities
- ❑ Distributed programs of EE and RE are more interesting for jobs creation and employment
- ❑ Renewable energy sector currently generates the largest number of jobs by per million dinars invested. The same "effect on employment can be generated with a more incentive policy to energy efficiency, especially in buildings.
- ❑ Stability of technology and services market is necessary for employment sustainability and permanent jobs
- ❑ In the long term, link among 'job creation' and 'industrial development' criteria can justify public investment in energy conservation with high added value approach.

شكرا



Thank you

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